National Library of Medicine: IGM Results Screen

Citations 1 to 20 of 22 from MEDLINE

☐ **TITLE:** Optimal reconstruction of a sequence from its probes.
Full Citation **AUTHORS:** Frieze AM, et al.
SOURCE: J Comput Biol. 1999 Fall-Winter;6(3-4):361-8.
[MEDLINE record in process]
Related Articles **CIT. IDS:** PMID: 10582572 UI: 20047397

☐ **TITLE:** Nanoliter-scale sample preparation methods directly coupled to polymethylmethacrylate-based microchips and gel-filled capillaries for the analysis of oligonucleotides.
Full Citation **AUTHORS:** Soper SA, et al.
SOURCE: J Chromatogr A. 1999 Aug 20;853(1-2):107-20.
Related Articles **CIT. IDS:** PMID: 10486717 UI: 99416171

☐ **TITLE:** Strategies for gene cloning.
Full Citation **AUTHORS:** Schamhart DH, et al.
SOURCE: Urol Res. 1999 Apr;27(2):83-96. Review.
Related Articles **CIT. IDS:** PMID: 10424389 UI: 99351675

☐ **TITLE:** DNA chip technology.
Full Citation **AUTHORS:** Kurian KM, et al.
SOURCE: J Pathol. 1999 Feb;187(3):267-71.
Related Articles **CIT. IDS:** PMID: 10398077 UI: 99368583

☐ **TITLE:** Solid-phase sequence scanning for drug resistance detection in tuberculosis.

Full Citation

AUTHORS: Head SR, et al.

SOURCE: Mol Cell Probes. 1999 Apr;13(2):81-7.

Related Articles **CIT. IDS:** PMID: 10208797 UI: 99225588

☐ **TITLE:** Chromatography and electrophoresis on chips: critical elements of future integrated, microfluidic analytical systems for life science.

Full Citation **AUTHORS:** Regnier FE, et al.

SOURCE: Trends Biotechnol. 1999 Mar;17(3):101-6. Review.

Related Articles **CIT. IDS:** PMID: 10189715 UI: 99205713

☐ **TITLE:** The Human Genome Project: from mapping to sequencing.

Full Citation **AUTHORS:** Weissenbach J

SOURCE: Clin Chem Lab Med. 1998 Aug;36(8):511-4.

Related Articles **CIT. IDS:** PMID: 9806450 UI: 99021287

☐ **TITLE:** Infrared-mediated thermocycling for ultrafast polymerase chain reaction amplification of DNA.

Full Citation **AUTHORS:** Oda RP, et al.

SOURCE: Anal Chem. 1998 Oct 15;70(20):4361-8.

Related Articles **CIT. IDS:** PMID: 9796420 UI: 99012512

☐ **TITLE:** [The DNA-chip, a new tool for medical genetics].

Full Citation **AUTHORS:** Falus A, et al.

SOURCE: Orv Hetil. 1998 Apr 19;139(16):957-60. Hungarian.

Related Articles **CIT. IDS:** PMID: 9595930 UI: 98258294

☐ **TITLE:** Integrated chip-based capillary electrophoresis.

Full Citation **AUTHORS:** Effenhauser CS, et al.

SOURCE: Electrophoresis. 1997 Nov;18(12-13):2203-13. Review.

Related Articles **CIT. IDS:** PMID: 9456035 UI: 98115570

☐ **TITLE:** Microchannel electrophoretic separations of DNA in injection-molded plastic substrates.

Full Citation **AUTHORS:** McCormick RM, et al.
SOURCE: Anal Chem. 1997 Jul 15;69(14):2626-30.
Related Articles **CIT. IDS:** PMID: 9341052 UI: 97476962

☐ **TITLE:** Analysis of biosensor chips for identification of nucleic acids.
Full Citation **AUTHORS:** Arlinghaus HF, et al.
SOURCE: Anal Chem. 1997 Sep 15;69(18):3747-53.
Related Articles **CIT. IDS:** PMID: 9302874 UI: 97448527

☐ **TITLE:** Fractionation, phosphorylation and ligation on oligonucleotide microchips to enhance sequencing by hybridization.
Full Citation **AUTHORS:** Dubiley S, et al.
SOURCE: Nucleic Acids Res. 1997 Jun 15;25(12):2259-65.
Related Articles **CIT. IDS:** PMID: 9171075 UI: 97315315

☐ **TITLE:** Combining the preparation of oligonucleotide arrays and synthesis of high-quality primers.
Full Citation **AUTHORS:** Weiler J, et al.
SOURCE: Anal Biochem. 1996 Dec 15;243(2):218-27.
Related Articles **CIT. IDS:** PMID: 8954553 UI: 97115751

☐ **TITLE:** Microfabrication and array technologies for DNA sequencing and diagnostics.
Full Citation **AUTHORS:** O'Donnell-Maloney MJ, et al.
SOURCE: Genet Anal. 1996 Dec;13(6):151-7.
Related Articles **CIT. IDS:** PMID: 9117891 UI: 97169184

☐ **TITLE:** Ultra-high-speed DNA sequencing using capillary electrophoresis chips.
Full Citation **AUTHORS:** Woolley AT, et al.
SOURCE: Anal Chem. 1995 Oct 15;67(20):3676-80.
Related Articles **CIT. IDS:** PMID: 8644919 UI: 96229075

☐ **TITLE:** Real-time detection of DNA hybridization and melting on oligonucleotide arrays by using optical wave guides.

Full Citation **AUTHORS:** Stimpson DI, et al.

SOURCE: Proc Natl Acad Sci U S A. 1995 Jul 3;92(14):6379-83.

Related Articles **CIT. IDS:** PMID: 7603999 UI: 95327650

☐ **TITLE:** DNA sequencing on a chip.

Full Citation **AUTHORS:** Noble D

SOURCE: Anal Chem. 1995 Mar 1;67(5):201A-204A. No abstract available.

Related Articles **CIT. IDS:** PMID: 7762813 UI: 95283060

☐ **TITLE:** Individualization of therapy using viral markers.

Full Citation **AUTHORS:** Merigan T

SOURCE: J Acquir Immune Defic Syndr Hum Retrovirol. 1995;10 Suppl 1:S41-6. Review.

Related Articles **CIT. IDS:** PMID: 8595507 UI: 96173464

☐ **TITLE:** DNA sequence recognition by hybridization to short oligomers.

Full Citation **AUTHORS:** Milosavljevic A

SOURCE: J Comput Biol. 1995 Summer;2(2):355-70.

Related Articles **CIT. IDS:** PMID: 7497133 UI: 96089053

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FILE 'BIOSIS, MEDLINE, EMBASE, CAPLUS, SCISEARCH' ENTERED AT 10:03:53 ON 05 JAN 2000

```
L1         29378 S DNA SEQUENCING
L2          3470 S MULTIPLE SAMPLE?
L3         65513 S CHIP?
L4            20 S L1 AND L2
L5             0 S L1 AND L2 AND L3
L6           129 S L1 AND L3
L7            15 DUPLICATE REMOVE L4 (5 DUPLICATES REMOVED)
L8            75 DUPLICATE REMOVE L6 (54 DUPLICATES REMOVED)
L9             1 S PARALLEL OLIGONUCLEOTIDE EXTENSION?
L10       585003 S FLUORESCENCE?

=> s l8 and l10

L11           11 L8 AND L10

=> duplication remove

ENTER L# LIST OR (END):l11

DUPLICATE PREFERENCE IS 'BIOSIS, MEDLINE, CAPLUS, SCISEARCH'
KEEP DUPLICATES FROM MORE THAN ONE FILE?  Y/(N):n

PROCESSING COMPLETED FOR L11
L12            11 DUPLICATE REMOVE L11 (0 DUPLICATES REMOVED)

=> d 1-11 all
```

L12 ANSWER 1 OF 11 SCISEARCH COPYRIGHT 2000 ISI (R)
AN 1999:131185 SCISEARCH
GA The Genuine Article (R) Number: 163VA
TI Optimization of high-speed **DNA sequencing** on microfabricated capillary electrophoresis channels
AU Liu S R; Shi Y N; Ja W W; Mathies R A (Reprint)
CS UNIV CALIF BERKELEY, DEPT CHEM, BERKELEY, CA 94720 (Reprint); UNIV CALIF BERKELEY, DEPT CHEM, BERKELEY, CA 94720
CYA USA
SO ANALYTICAL CHEMISTRY, (1 FEB 1999) Vol. 71, No. 3, pp. 566-573. Publisher: AMER CHEMICAL SOC, 1155 16TH ST, NW, WASHINGTON, DC 20036. ISSN: 0003-2700.
DT Article; Journal
FS PHYS; LIFE
LA English
REC Reference Count: 49
CC CHEMISTRY, ANALYTICAL
STP KeyWords Plus (R): REPLACEABLE LINEAR POLYACRYLAMIDE; INDUCED **FLUORESCENCE** DETECTION; ARRAY ELECTROPHORESIS; GEL-ELECTROPHORESIS; 1000 BASES; SEPARATION; **CHIPS**; PRIMERS; PERFORMANCE; FRAGMENTS
RE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)

BASHKIN J	1996	6	23	APPL THEOR ELECTROPH
CARRILHO E	1996	68	3305	ANAL CHEM
COHEN A S	1990	516	49	J CHROMATOGR
COHEN A S	1988	85	9660	P NATL ACAD SCI USA
DEAR S	1992	3	107	DNA SEQUENCE
DROSSMAN H	1990	62	900	ANAL CHEM
EFFENHAUSER C S	1993	65	2637	ANAL CHEM
EFFENHAUSER C S	1994	66	2949	ANAL CHEM
EWING B	1998	8	175	GENOME RES
GIDDINGS M C	1998	8	644	GENOME RES
GIDDINGS M C	1993	21	4530	NUCLEIC ACIDS RES
HARRISON D J	1993	261	895	SCIENCE
HJERTEN S	1985	347	191	J CHROMATOGR
HUANG X H C	1992	64	967	ANAL CHEM
HUANG X H C	1992	64	2149	ANAL CHEM
HUNG S C	1997	252	78	ANAL BIOCHEM
JACOBSON S C	1994	66	1107	ANAL CHEM
JACOBSON S C	1994	66	1114	ANAL CHEM
JU J Y	1995	231	131	ANAL BIOCHEM
KASPER T J	1988	458	303	J CHROMATOGR
KHETERPAL I	1996	17	1852	ELECTROPHORESIS
KIM Y	1997	781	315	J CHROMATOGR A
KLEPARNIK K	1996	17	1860	ELECTROPHORESIS
LUCKEY J A	1993	97	3067	J PHYS CHEM-US
MANSFIELD E S	1997	781	295	J CHROMATOGR A
MANZ A	1992	593	253	J CHROMATOGR
MATHIES R A	1992	359	167	NATURE
MATHIES R A	1998		1	P MUTAS WORKSH BANFF
QUESADA M A	1996	17	1841	ELECTROPHORESIS
RUIZMARTINEZ M C	1993	65	2851	ANAL CHEM
SCHMALZING D	1998	70	2303	ANAL CHEM
SCHMALZING D	1997	94	10273	P NATL ACAD SCI USA
SIMPSON P C	1998	1	7	BIOMED MICRODEVICES
SIMPSON P C	1998	95	2256	P NATL ACAD SCI USA
SMITH L M	1986	321	674	NATURE
SUNADA W M	1997	18	2243	ELECTROPHORESIS
SWERDLOW H	1990	516	61	J CHROMATOGR
TAKAHASHI S	1994	66	1021	ANAL CHEM
UENO K	1994	66	1424	ANAL CHEM
WANG Y	1996	17	1485	ELECTROPHORESIS
WANG Y W	1997	18	1742	ELECTROPHORESIS
WATERS L C	1998	70	158	ANAL CHEM
WOOLLEY A T	1995	67	3676	ANAL CHEM
WOOLLEY A T	1996	68	4081	ANAL CHEM
WOOLLEY A T	1997	69	2181	ANAL CHEM
WOOLLEY A T	1994	91	11348	P NATL ACAD SCI USA
WOOLLEY A T	1995	2386	36	P SOC PHOTO-OPT INS
YIN Z B	1996	17	1143	ELECTROPHORESIS
ZHANG J Z	1995	67	4589	ANAL CHEM

L12 ANSWER 2 OF 11 BIOSIS COPYRIGHT 2000 BIOSIS
AN 1999:391201 BIOSIS
DN PREV199900391201
TI Automated mutation analysis.
AU Ravine, D. (1)
CS (1) Institute of Medical Genetics, University of Wales College of Medicine, Heath Park, Cardiff, CF4 4XN UK
SO Journal of Inherited Metabolic Disease, (June, 1999) Vol. 22, No. 4, pp. 503-518.
ISSN: 0141-8955.
DT General Review
LA English
SL English
AB Automated mutation analysis brings with it a vastly increased capacity in

the number of test samples that can be processed at a time, as well as much improved test reproducibility. Until now, the introduction of automation into this field had been restricted to the use of semiautomated sequencing systems to make the most of the sequence information extractable from a single lane in an electrophoretic gel or in a polymer-filled glass capillary. Much effort is now being directed into harnessing the potential of DNA microarrays (DNA **chips**) and there is increasing interest in the potential of matrix-assisted mass spectrometry for determining the detail of large nucleic acid molecules. Meanwhile, there are other important recent developments already available, including robotic workstations, the further development of the allele-specific oligonucleotide assay into microtitre formats, and its use with **fluorescence** for real-time quantitative PCR analysis. Implementation of these developmentsin appropriate settings can further streamline the routine of molecular diagnostic laboratories, allowing them to take greater advantage of the recent surge of gene discoveries and their associated disease-causing mutations.

CC Genetics and Cytogenetics - Animal *03506

IT Major Concepts
Methods and Techniques; Molecular Genetics (Biochemistry and Molecular Biophysics)

IT Chemicals & Biochemicals
nucleic acid molecules

IT Methods & Equipment
allele-specific oligonucleotide assay: analytical method; automated mutation analysis: analytical method; matrix-assisted mass spectrometry: analytical method; real-time quantitative PCR analysis [real-time quantitative polymerase chain reaction analysis]: analytical method; **DNA sequencing**: analytical method

IT Miscellaneous Descriptors
mutation detection; DNA microarrays

L12 ANSWER 3 OF 11 BIOSIS COPYRIGHT 2000 BIOSIS

AN 1999:476064 BIOSIS

DN PREV199900476064

TI Nanoliter-scale sample preparation methods directly coupled to polymethylmethacrylate-based microchips and gel-filled capillaries for the analysis of oligonucleotides.

AU Soper, Steven A. (1); Ford, Sean M.; Xu, Yichuan; Qi, Shize; McWhorter, Scott; Lassiter, Suzzane; Patterson, Don; Bruch, Richard C.

CS (1) Department of Chemistry, Louisiana State University, 232 Choppin Hall, Baton Rouge, LA, 70803-1804 USA

SO Journal of Chromatography A, (Aug. 20, 1999) Vol. 853, No. 1-2, pp. 107-120.
ISSN: 0021-9673.

DT Article

LA English

SL English

AB We are currently developing miniaturized, **chip**-based electrophoresis devices fabricated in plastics for the high-speed separation of oligonucleotides. One of the principal advantages associated with these devices is their small sample requirements, typically in the nanoliter to sub-nanoliter range. Unfortunately, most standard sample preparation protocols, especially for oligonucleotides, are done off-**chip** on a microliter-scale. Our work has focused on the development of capillary nanoreactors coupled to micro-separation platforms, such as micro-electrophoresis **chips**, for the preparation of sequencing ladders and also polymerase chain reactions

(PCRs). These nanoreactors consist of fused-silica capillary tubes (10-20 cmX20-50 mum I.D.) with fluid pumping accomplished using the electroosmotic flow generated by the tubes. These reactors were situated in fast thermal cyclers to perform cycle sequencing or PCR amplification of the DNAs. The reactors could be interfaced to either a micro-electrophoresis **chips** via capillary connectors micromachined in polymethylmethacrylate (PMMA) using deep X-ray etching (width 50 mum; depth 50 mum) or conventional capillary gel tubes using zero-dead volume glass unions. For our **chips**, they also contained an injector, separation channel (length 6 cm; width 30 mum; depth 50 mum) and a dual fiber optic, near-infrared **fluorescence** detector. The sequencing nanoreactor used surface immobilized templates attached to the wall via a biotin-streptavidin-biotin linkage. Sequencing tracks could be directly injected into gel-filled capillary tubes with minimal degradation in the efficiency of the separation process. The nanoreactor could also be configured to perform PCR reactions by filling the capillary tube with the PCR reagents and template. After thermal cycling, the PCR cocktail could be pooled from multiple reactors and loaded onto a slab gel or injected into a capillary tube or microchip device for fractionation.

CC Genetics and Cytogenetics - General *03502
Biochemical Methods - General *10050
Biochemical Studies - General *10060
Biophysics - General Biophysical Studies *10502

IT Major Concepts
Methods and Techniques; Molecular Genetics (Biochemistry and Molecular Biophysics)

IT Chemicals & Biochemicals
oligonucleotides: analysis, separation; DNA: amplification, sequencing

IT Methods & Equipment
capillary gel electrophoresis-laser induced **fluorescence** system: laboratory equipment; capillary gel electrophoresis-laser induced **fluorescence**: Analysis/Characterization Techniques: CB, electrophoretic techniques, analytical method, separation method; gel-filled capillary nanoreactor: laboratory equipment; polymerase chain reaction: DNA amplification, amplification method; polymethylmethacrylate-based micro-electrophoresis **chip**: laboratory equipment; **DNA sequencing**: sequencing method, sequencing techniques

IT Miscellaneous Descriptors
nanoliter-scale sample preparation

RN 9011-14-7 (POLYMETHYLMETHACRYLATE)

L12 ANSWER 4 OF 11 CAPLUS COPYRIGHT 2000 ACS
AN 1998:788694 CAPLUS
DN 130:48273
TI Method and apparatus for rapid **DNA sequencing** using sub-microliter volumes
IN Soper, Steven A.; Davies, Jack D.; Vladimirsky, Yuli
PA Board of Supervisors of Louisiana State University and Agricultural & Me, USA
SO U.S., 17 pp.
CODEN: USXXAM
DT Patent
LA English
IC ICM C12M001-00
ICS C12M003-04; C12N015-00; C07H021-00
NCL 435006000
CC 3-1 (Biochemical Genetics)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 5846727	A	19981208	US 1997-865275	19970529

AB A system is disclosed for the rapid and cost-effective sequencing of DNA. There are three principal components of the system: (1) a microreactor,

which preps. **DNA sequencing** "ladders" using solid-phase techniques, preferably in capillary tubes whose vols. are on the order of 10-1000 nL, preferably 10-200 nL; (2) a microfabricated electrophoresis capillary sepn. unit; and (3) a **fluorescence** detector with single-mode optical fibers interfaced directly to the electrophoresis capillary. The system is suitable for a highly multiplexed, automated **DNA sequencing** device. Typical steps in sequencing are as follows: (1) PCR amplification of a DNA template in microtiter dishes using labeled primers, e.g., primers labeled with biotin; (2) immobilizing the labeled PCR products on the walls of one or more capillary tubes having vols. on the order of 10-200 nL; (3) prepg. nanoliter quantities of labeled Sanger extension products of the amplified DNA; (4) purifying the oligonucleotide sequencing ladders; (5) high speed electrophoretic sepn. of the sequencing ladders; and (6) near-IR, laser-induced **fluorescence** detection of the oligonucleotides. Base-calling is preferably performed in a single lane format with a single fluorophore, in which the bases are distinguished by different **fluorescence** lifetimes of dyes that otherwise have similar absorption and **fluorescence** emission spectra at the wavelengths used. Typical read lengths are on the order of 400-500 bases. **Fluorescence** is performed on-**chip** with one single-mode optical fiber carrying the excitation light to the capillary channel, and a second single-mode optical fiber collecting the fluorescent photons. Only sub-microliter vols. of expensive sequencing reagents and dye-labeled NIPs are required in this system.

ST **DNA sequencing** app nanoliter scale

IT Acrylic polymers, uses
Epoxy resins, uses
Polysulfones, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(as X ray resists in manuf. of microcapillaries for sequencing app.; method and app. for rapid **DNA sequencing** using sub-microliter vols.)

IT Apparatus
(for DNA sequences; method and app. for rapid **DNA sequencing** using sub-microliter vols.)

IT X-ray resists
(in manuf. of microcapillaries for sequencing app.; method and app. for rapid **DNA sequencing** using sub-microliter vols.)

IT DNA sequence analysis
(method and app. for rapid **DNA sequencing** using sub-microliter vols.)

IT Capillary electrophoresis
(of **DNA sequencing** elongation products; method and app. for rapid **DNA sequencing** using sub-microliter vols.)

IT Capillary tubes
(reaction tubes; method and app. for rapid **DNA sequencing** using sub-microliter vols.)

IT 9011-14-7, Polymethyl methacrylate 25104-10-3 26591-04-8, Ethyl acrylate-glycidyl methacrylate copolymer 176736-85-9
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(as X ray resists in manuf. of microcapillaries for sequencing app.; method and app. for rapid **DNA sequencing** using sub-microliter vols.)

L12 ANSWER 5 OF 11 BIOSIS COPYRIGHT 2000 BIOSIS
AN 1999:156836 BIOSIS
DN PREV199900156836
TI High throughput DNA genotyping on capillary array electrophoresis **chips**.
AU Simpson, P. (1); Woolley, A. (1); Thorsen, T.; Sensabaugh, G. F.; Mathies, R. A. (1)
CS (1) Dep. Chem., Univ. Calif., Berkeley, CA USA
SO Olaisen, B. [Editor]; Brinkmann, B. [Editor]; Lincoln, P. J. [Editor]. International Congress Series, (1998) No. 1167, pp. 3-5. International Congress Series; Progress in Forensic Genetics, 7.
Publisher: Elsevier Science Publishers B.V. PO Box 211, Sara Burgerhartstraat 25, 1000 AE Amsterdam, The Netherlands.
Meeting Info.: Proceedings of the 17th International ISFH (International Society for Forensic Haemogenetics) Congress Oslo, Norway September 2-6, 1997
ISSN: 0531-5131. ISBN: 0-444-82965-2.
DT Book; Conference
LA English
CC Genetics and Cytogenetics - General *03502
Biochemical Methods - General *10050
Biochemical Studies - General *10060
BC Hominidae 86215
IT Major Concepts
Equipment, Apparatus, Devices and Instrumentation; Genetics; Methods and Techniques
IT Chemicals & Biochemicals
DNA: **sequencing**, typing
IT Methods & Equipment
capillary array electrophoresis **chip**: laboratory equipment; capillary array electrophoresis: analytical method; high throughput DNA
genotyping: genetic method; laser-excited confocal **fluorescence** scanner: laboratory equipment
IT Miscellaneous Descriptors
Book Chapter; Meeting Paper
ORGN Super Taxa
Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia
ORGN Organism Name
human (Hominidae)
ORGN Organism Superterms
Animals; Chordates; Humans; Mammals; Primates; Vertebrates

L12 ANSWER 6 OF 11 BIOSIS COPYRIGHT 2000 BIOSIS
AN 1998:479526 BIOSIS
DN PREV199800479526
TI Overview of DNA **chip** technology.
AU Lemieux, Bertrand; Aharoni, Asaph; Schena, Mark (1)
CS (1) Dep. Biochem., Beckman Center, Stanford University Sch. Med., Stanford, CA 94305 USA
SO Molecular Breeding, (Aug., 1998) Vol. 4, No. 4, pp. 277-289.
ISSN: 1380-3743.
DT General Review
LA English
AB DNA **chip** technology utilizes microscopic arrays (microarrays) of molecules immobilized on solid surfaces for biochemical analysis. Microarrays can be used for expression analysis, polymorphism detection, DNA resequencing, and genotyping on a genomic scale. Advanced arraying technologies such as photolithograpy, micro-spotting and ink jetting, coupled with sophisticated **fluorescence** detection systems and bioinformatics, permit molecular data gathering at an unprecedented rate. Microarray-based characterization of plant genomes has the potential to revolutionize plant breeding and agricultural biotechnology. This review provides an overview of DNA **chip** technology, focusing on

manufacturing approaches and biological applications.
CC Genetics and Cytogenetics - General *03502
Biochemical Methods - Nucleic Acids, Purines and Pyrimidines *10052
IT Major Concepts
Methods and Techniques; Molecular Genetics (Biochemistry and Molecular Biophysics)
IT Methods & Equipment
expression analysis: molecular method; genotyping: genetic method; molecular microarray technique [molecular microscopic array technique]: molecular method; polymorphism detection: molecular method; **DNA sequencing**: genetic method
IT Miscellaneous Descriptors
breeding; genetic transformation; DNA **chip** technology

L12 ANSWER 7 OF 11 SCISEARCH COPYRIGHT 2000 ISI (R)
AN 1998:329719 SCISEARCH
GA The Genuine Article (R) Number: ZJ471
TI Enhanced separation of **DNA sequencing** products by capillary electrophoresis using a stepwise gradient of electric field strength
AU Inoue H; Tsuhako M; Baba Y (Reprint)
CS UNIV TOKUSHIMA, FAC PHARMACEUT SCI, DEPT MED CHEM, SHOMACHI 1-78, TOKUSHIMA 770, JAPAN (Reprint); UNIV TOKUSHIMA, FAC PHARMACEUT SCI, DEPT MED CHEM, TOKUSHIMA 770, JAPAN; KOBE PHARMACEUT UNIV, DEPT CHEM, KOBE, HYOGO 658, JAPAN
CYA JAPAN
SO JOURNAL OF CHROMATOGRAPHY A, (3 APR 1998) Vol. 802, No. 1, pp. 179-184. Publisher: ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS.
ISSN: 0021-9673.
DT Article; Journal
FS PHYS; LIFE
LA English
REC Reference Count: 25
AB The effect of the electric field strength gradient on the separation of **DNA sequencing** fragments was investigated. We demonstrate that the stepwise gradient of electric field improves the separation of **DNA sequencing** fragments more than 500 bases in size and diminishes the analysis time for **DNA sequencing** of lager DNA fragments. The use of the electric field strength gradient induces an increase in the theoretical plate number as predicted by the theoretical formulation discussed in this paper. (C) 1998 Elsevier Science B.V.
CC CHEMISTRY, ANALYTICAL; BIOCHEMICAL RESEARCH METHODS
ST Author Keywords: electric field strength gradients; DNA
STP KeyWords Plus (R): LASER-INDUCED **FLUORESCENCE**; REPLACEABLE LINEAR POLYACRYLAMIDE; CROSS-LINKED POLYACRYLAMIDE; GEL-FILLED CAPILLARIES; RESTRICTION FRAGMENTS; BASES; LENGTH; **CHIPS**
RE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)
BABA Y	1992	64	1221	ANAL CHEM
BABA Y	1996	687	271	J CHROMATOGR B
BABA Y	1992	11	280	TRAC-TREND ANAL CHEM
BASHKIN J	1996	6	23	APPL THEOR ELECTROPH
BEST N	1994	66	4063	ANAL CHEM
CARRILHO E	1996	68	3305	ANAL CHEM
FUNG E N	1995	67	1913	ANAL CHEM
GUTTMAN A	1992	64	2348	ANAL CHEM
GUTTMAN A				COMMUNICATION
JORGENSON J W	1983	22	266	SCIENCE

KAMBARA H	1993	361	565	NATURE
LUCKEY J A	1990	18	4417	NUCLEIC ACI RES
MANABE T	1994	66	4243	ANAL CHEM
MATHIES R A	1993	359	167	NATURE
MEWES H W	1997	387	7	NATURE S
NISHIKAWA T	1994	15	215	ELECTROPHORESIS
RUIZMARTINEZ M C	1993	65	2851	ANAL CHEM
SCHULER G D	1996	274	540	SCIENCE
SMITH L M	1993	262	530	SCIENCE
SUMITA C	1994	661	297	J CHROMATOGR A
SWERDLOW H	1991	63	2835	ANAL CHEM
TOMISAKI R	1994	10	817	ANAL SCI
WOOLLEY A T	1995	67	3676	ANAL CHEM
WOOLLEY A T	1994	91	11348	P NATL ACAD SCI USA
ZHANG J Z	1995	67	4589	ANAL CHEM

L12 ANSWER 8 OF 11 CAPLUS COPYRIGHT 2000 ACS
AN 1999:183711 CAPLUS
DN 130:349169
TI Integrated capillary electrophoresis using glass and plastic **chips** for multiplexed DNA analysis
AU Paulus, Aran; Williams, Stephen J.; Sassi, Alexander P.; Kao, Pin; Hongdong, Tan; Hooper, Herbert H.
CS ACLARA BioSciences, Hayward, CA, 94545, USA
SO Proc. SPIE-Int. Soc. Opt. Eng. (1998), 3515(Microfluidic Devices and Systems), 94-103
CODEN: PSISDG; ISSN: 0277-786X
PB SPIE-The International Society for Optical Engineering
DT Journal
LA English
CC 9-1 (Biochemical Methods)
Section cross-reference(s): 3
AB Micromachined devices made of plastic have been used for fast electrophoretic sepns. using short sepn. distances and high elec. field strengths. Unlike their glass counterparts, plastic **chips** can be manufd. economically and in high vol. Anal. can be performed in single channels, as shown for **DNA sequencing** mixts., or in channel arrays as demonstrated for the anal. of ds DNA fragments. Compared to slab gel electrophoresis and capillary electrophoresis, sepns. are extremely fast with a time-scale under 20 min for a sequence anal. and under 2 min for fragment anal. Confocal laser-induced **fluorescence** provides a sensitive means of detection.
ST integrated capillary electrophoresis micromachined plastic **chip** DNA analysis
IT DNA
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(fragment anal. of; integrated capillary electrophoresis using glass and plastic **chips** for multiplexed DNA anal.)
IT DNA sequence analysis
(integrated capillary electrophoresis using glass and plastic **chips** for multiplexed DNA anal.)
IT Glass, uses
RL: DEV (Device component use); USES (Uses)
(integrated capillary electrophoresis using glass and plastic **chips** for multiplexed DNA anal.)
IT Capillary electrophoresis
(integrated; integrated capillary electrophoresis using glass and plastic **chips** for multiplexed DNA anal.)
IT Plastics, uses
RL: DEV (Device component use); USES (Uses)
(micromachined; integrated capillary electrophoresis using glass and plastic **chips** for multiplexed DNA anal.)

L12 ANSWER 9 OF 11 CAPLUS COPYRIGHT 2000 ACS
AN 1997:753619 CAPLUS
DN 128:124202
TI Efficient **DNA sequencing** with a pulsed semiconductor laser and a new fluorescent dye set
AU Muller, Ralph; Herten, Dirk P.; Lieberwirth, Ulrike; Neumann, Michael; Sauer, Markus; Schulz, Andreas; Siebert, Stefan; Drexhage, Karl H.; Wolfrum, Jurgen
CS Im Neuenheimer Feld, Physikalisch-Chemisches Institut, Universitat Heidelberg, 69120 Heidelberg, Germany
SO Chem. Phys. Lett. (1997), 279(5,6), 282-288
CODEN: CHPLBC; ISSN: 0009-2614
PB Elsevier Science B.V.
DT Journal
LA English
CC 3-1 (Biochemical Genetics)
Section cross-reference(s): 9
AB A new method is presented for automated one-lane four-dye **DNA sequencing** in capillary gel electrophoresis based on semiconductor technol. and a special set of multiplex fluorescent dyes which exhibit similar absorption and emission spectra but different fluorescent lifetimes. The primer sequencing reaction was applied in a confocal optical system. Detection and identification of the differently 5'-labeled primers was done by time-correlated single-photon counting and a specially developed pattern-recognition technique based on the characteristic **fluorescence** lifetimes of the fluorescent dyes used as labels. Efficient excitation was performed at 630 nm by a short-pulsed semiconductor laser with a repetition rate of 22 MHz and pulsewidth of about 500 ps (FWHM). With the new dye set, no mobility shift correction is required for a sepn. up to 350 base pairs during sepn.
in a linear 5 PAA gel. This technique of multiplex-dye **DNA sequencing** shows potential for high-throughput **DNA sequencing** in parallel capillaries or microfabricated **DNA sequencing chips**.
ST laser **fluorescence** dye electrophoresis **DNA sequencing**
IT Capillary gel electrophoresis
DNA sequence analysis
Fluorescent dyes
(efficient **DNA sequencing** with pulsed semiconductor laser and new fluorescent dye set)
IT Semiconductor lasers
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(pulsed; efficient **DNA sequencing** with pulsed semiconductor laser and new fluorescent dye set)
IT 192864-78-1, MR 200-1
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(192864781; efficient **DNA sequencing** with pulsed semiconductor laser and new fluorescent dye set)
IT 146368-11-8, Cy 5
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(Cy 5; efficient **DNA sequencing** with pulsed semiconductor laser and new fluorescent dye set)
IT 202062-77-9, JA 169
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(JA 169; efficient **DNA sequencing** with pulsed semiconductor laser and new fluorescent dye set)
IT 202063-06-7, JA 242
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(JA 242; efficient **DNA sequencing** with pulsed semiconductor laser and new fluorescent dye set)

L12 ANSWER 10 OF 11 BIOSIS COPYRIGHT 2000 BIOSIS

AN 1995:29815 BIOSIS
DN PREV199598044115
TI Ultra-high-speed [redacted]A fragment separations using mi[redacted]ofabricated capillary array electrophoresis **chips**.
AU Woolley, Adam T.; Mathies, Richard A. (1)
CS (1) Dep. Chem., Univ. California, Berkeley, CA 94720 USA
SO Proceedings of the National Academy of Sciences of the United States of America, (1994) Vol. 91, No. 24, pp. 11348-11352.
ISSN: 0027-8424.
DT Article
LA English
AB Capillary electrophoresis arrays have been fabricated on planar glass substrates by photolithographic masking and chemical etching techniques. The photolithographically defined channel patterns were etched in a glass substrate, and then capillaries were formed by thermally bonding the etched substrate to a second glass slide. High-resolution electrophoretic separations of vphi-X174 Hae III DNA restriction fragments have been performed with these **chips** using a hydroxyethyl cellulose sieving matrix in the channels. DNA fragments were fluorescently labeled with dye in the running buffer and detected with a laser-excited, confocal **fluorescence** system. The effects of variations in the electric field, procedures for injection, and sizes of separation and injection channels (ranging from 30 to 120 mu-m) have been explored. By use of channels with an effective length of only 3.5 cm, separations of vphi-X174 Hae III DNA fragments from apprxeq 70 to 1000 hp are complete in only 120 sec. We have also demonstrated high-speed sizing of PCR-amplified HLA-DQ-alpha alleles. This work establishes methods for high-speed, high-throughput DNA separations on capillary array electrophoresis **chips**.
CC Methods, Materials and Apparatus, General - Laboratory Apparatus *01006
Genetics and Cytogenetics - General *03502
Biochemical Methods - Nucleic Acids, Purines and Pyrimidines *10052
Biochemical Studies - Nucleic Acids, Purines and Pyrimidines 10062
Biophysics - General Biophysical Techniques *10504
Biophysics - Molecular Properties and Macromolecules *10506
IT Major Concepts
Biochemistry and Molecular Biophysics; Equipment, Apparatus, Devices and Instruments; Genetics; Methods and Techniques
IT Miscellaneous Descriptors
ALLELIC FRAGMENT SIZING METHOD; ANALYTICAL METHOD; CONFOCAL FLUORESCENT DETECTION; **DNA SEQUENCING** METHOD; LABORATORY APPARATUS; MICROFABRICATION

L12 ANSWER 11 OF 11 MEDLINE
AN 92119326 MEDLINE
DN 92119326
TI A method for **DNA sequencing** by hybridization with oligonucleotide matrix.
AU Khrapko K R; Lysov YuP; Khorlin A A; Ivanov I B; Yershov G M; Vasilenko S K; Florentiev V L; Mirzabekov A D
CS V.A. Engelhardt Institute of Molecular Biology, Academy of Sciences of the USSR, Moscow..
SO DNA SEQUENCE, (1991) 1 (6) 375-88.
Journal code: A9H. ISSN: 1042-5179.
CY Switzerland
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199204
AB A new technique of **DNA sequencing** by hybridization with oligonucleotide matrix (SHOM) which could also be applied for DNA

mapping and fingerprinting, mutant diagnostics, etc., has been tested in model experiments. A dot matrix was prepared which contained 9 overlapping octanucleotides (8-mers) complementary to a common 17-mer. Each of the 8-mers was immobilized as individual dot in thin layer of polyacrylamide gel fixed on a glass plate. The matrix was hybridized with the 32P-labeled 17-mer and three other 17-mers differing from the first one by a single base change. The hybridization enabled us to distinguish perfect duplexes from those containing mismatches in 32 out of 35 cases. These results are discussed with respect to the applicability of the approach for sequencing. It was shown that hybridization of DNA with an immobilized 8-mer in the presence of a labeled 5-mer led to the formation of a stable duplex with the 5-mer only if the 5- and the 8-mers were in continuous stacking making a perfect nicked duplex 13 (5+8) base pairs long. These experiments and computer simulations suggest that continuous stacking hybridization may increase the efficiency of sequencing so that random or natural coding DNA fragments about 1000 bases long could be sequenced in more than 97% of cases. Miniaturized matrices or sequencing **chips** were designed, where oligonucleotides were immobilized within 100 x 100 micron dots disposed at 100 micron intervals. Hybridization of fluorescently labeled DNA fragments with microchips may simplify sequencing and ensure sensitivity of at least 10 attomoles per dot. The perspectives and limitations of SHOM are discussed.

CT *Base Sequence
DNA
Fluorescence
Genetic Techniques
Molecular Sequence Data
*Nucleic Acid Hybridization
*Oligonucleotides
Temperature

RN 9007-49-2 (DNA)